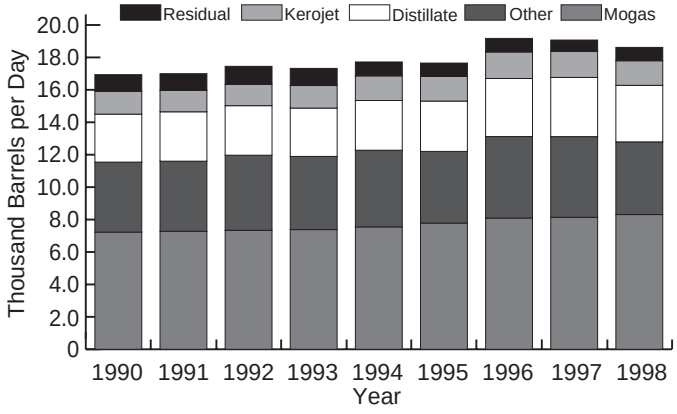
Highlights

The Federal Reserve's Beige Book points to some slowing in the economy from September to October citing softening in manufacturing and growing concerns from both consumers and the business sector with regard to the outlook for the economy.[1] Total demand for refined petroleum products in October 1998[2] (measured as products supplied) averaged 18.6 million barrels per day, the lowest October level since 1995 (Figure H1). Data collected by the National Oceanic Atmospheric Administration (NOAA) during the month show that temperatures in the U.S., on average, were nearly 8 percent warmer than normal and 15 percent warmer than this time last year.[3]

Figure H1. Total Demand, 1990-Current, Comparison in October for Petroleum Products

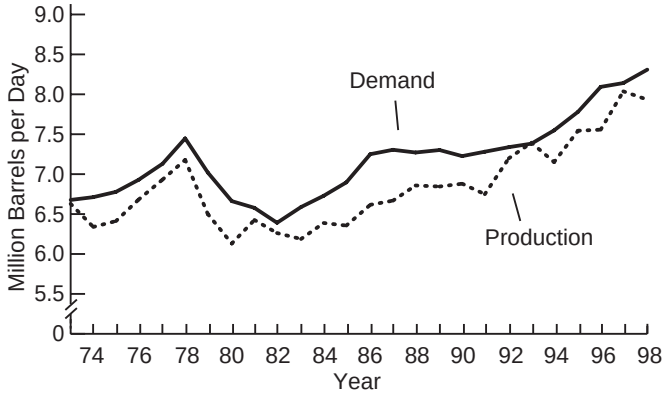


Source: Energy Information Administration, *Petroleum Supply Annual*, DOE/EIA-0340 (various issues), and *Petroleum Supply Monthly*, DOE/EIA-0109 (various issues).

October 1998 highlights include:

- Finished motor gasoline **demand** set **a record high for the month** at 8.3 million barrels per day. **Production** of finished motor gasoline averaged 7.9 million barrels, roughly 100 thousand barrels per day below the October record high set last year. Finished motor gasoline **stocks** ended the month slightly below year ago levels, totaling 157.3 million barrels.
- Both **demand** and **production** of distillate fuel oil were at their lowest levels for the month since 1995, averaging 3.5 million barrels per day and 3.2 million barrels per day, respectively. Total **stocks** of distillate fuel oils ended the month at 145.1 million barrels, **nearly 7 percent higher than last year**.
- Residual fuel oil **production** dropped to the lowest level for the month since 1971, averaging 691 thousand barrels per day. Residual fuel oil **stocks** ended October at their highest level for the month in four years, totaling 39.5 million barrels.
- Kerosene-type jet fuel **demand** averaged 1.5 million barrels per day, down from last year's level. Kerosene-type jet fuel **production** dropped to **the lowest monthly level since May 1996**. **Stocks** were normal for this time of year at 43.0 million barrels.
- Going into the start of the heating season propane inventories ended the month at **their highest level for October since 1981**, totaling 76.3 million barrels.
- Domestic crude oil **production** averaged 6.4 million barrels per day, **the lowest average for October since 1954**. **Imports** of crude oil averaged 8.3 million barrels per day, 590 thousand barrels per day below last year's record high for October. Crude oil **stocks** excluding the Strategic Petroleum Reserves (SPR), ended the month at 339.8 million barrels.

Figure H2. Finished Motor Gasoline, Year-to-Year October Comparisons, 1973-1998



Source: Energy Information Administration, *Petroleum Supply Annual*, DOE/EIA-0340 (various issues), and *Petroleum Supply Monthly*, DOE/EIA-0109 (various issues).

Motor Gasoline

Due to substantial refinery maintenance programs and the lingering effects from hurricanes in the Gulf Coast, supplies of gasoline tightened during the month causing gasoline prices to increase slightly.[4] The retail price for conventional motor gasoline averaged $1.039 a gallon (including taxes), 17 cents less than prices a year ago (Figure H3).[5] **Demand** for finished motor gasoline reached a record high for October at 8.3 million barrels per day (Figure H2). **Production** of finished motor gasoline averaged 7.9 million barrels per day. Gasoline imports from Europe became an attractive source of supply for the U.S. this October, thanks to the favorable arbitrage.[6] Gasoline supply from abroad reached the highest level for this time of year since 1989 as **imports** averaged 307 thousand barrels per day during October. After several months of above normal seasonal levels, **stocks** of finished motor gasoline ended the month below year ago levels, totaling 157.3 million barrels.

[1]"The Beige Book", *Federal Reserve Board*, November 4, 1998, accessible via the Internet at http://www.bog.frb.fed.us.
[2]October 1998 data are monthly-from-weekly estimates based on the Energy Information Administration's Weekly Petroleum Supply Reporting System.
[3]"Heating Degree Day Data Monthly Summary, Monthly Data for October 1998", *National Oceanic Atmospheric Administration*, accessible via the Internet at http://nic.fb4.noaa.gov.
[4]"Gasoline Prices Register First Increase Since June", *The Oil Daily*, October 22, 1998, p. 3 & 6.
[5]"Table 16. U.S. Retail Motor Gasoline and On-Highway Diesel Fuel Prices, 1997 to Present", *Weekly Petroleum Status Report*, October 30, 1998, p. 27.
[6]"Return of U.S. Refineries From Maintenance Darkens Margin Outlook", *The Oil Daily*, October 30, 1998, p. 3.

Table H1. Petroleum Supply Summary

(Million Barrels per Day, Except Where Noted)

Category	1998			1997	January - October	
	Estimated October	September	Difference[a]	October	1998	1997
Products Supplied	18.6	18.8	-0.2	19.1	18.6	18.6
Finished Motor Gasoline	8.3	8.3	(s)	8.1	8.2	8.0
Distillate Fuel Oil	3.5	3.4	0.1	3.7	3.5	3.4
Residual Fuel Oil	0.8	0.9	-0.1	0.7	0.8	0.8
Jet Fuel	1.5	1.5	(s)	1.6	1.5	1.6
Other Petroleum Products[b]	4.5	4.7	-0.2	5.0	4.6	4.7
Crude Oil Inputs	14.0	14.9	-0.9	14.9	14.8	14.6
Operating Utilization Rate (%)	89.7	95.8	-6.1	97.8	96.4	96.3
Imports	10.3	10.3	(s)	10.8	10.4	10.3
Crude Oil	8.3	8.4	-0.1	8.9	8.5	8.3
Strategic Petroleum Reserve	0.0	0.0	0.0	0.0	0.0	0.0
Other	8.3	8.4	-0.1	8.9	8.5	8.3
Products	1.9	1.9	(s)	1.9	1.8	2.0
Finished Motor Gasoline	0.3	0.3	(s)	0.3	0.3	0.3
Distillate Fuel Oil	0.2	0.2	(s)	0.2	0.2	0.2
Residual Fuel Oil	0.3	0.2	0.1	0.2	0.2	0.2
Jet Fuel	0.1	0.1	(s)	0.1	0.1	0.1
Other Petroleum Products[c]	1.1	1.1	-0.1	1.1	1.1	1.2
Exports	1.0	0.9	0.1	1.1	1.0	1.0
Crude Oil	0.1	(s)	0.1	0.2	0.1	0.1
Products	0.9	0.8	0.1	0.9	0.8	0.9
Total Net Imports	9.3	9.4	-0.2	9.7	9.4	9.3
Stock Change[d]	-0.2	-0.6	0.4	0.2	0.3	0.3
Crude Oil	0.6	-0.7	1.3	0.4	0.1	0.1
Products	-0.8	(s)	-0.9	-0.2	0.2	0.2
Total Stocks (million barrels)	1,647	1,653	-5	1,598	—	—
Crude Oil	903	873	30	879	—	—
Strategic Petroleum Reserve	563	563	0	563	—	—
Other	340	310	30	316	—	—
Products	744	779	-35	718	—	—
Finished Motor Gasoline	157	165	-7	158	—	—
Distillate Fuel Oil	145	153	-7	136	—	—
Residual Fuel Oil	40	40	(s)	36	—	—
Jet Fuel	43	46	-3	46	—	—
Other Petroleum Products[c]	359	377	-18	342	—	—

[a] Difference is equal to volume for current month minus volume for previous month.

[b] Includes crude oil product supplied, natural gas liquids, liquefied refinery gases (LRG's), other liquids, and all finished petroleum products except finished motor gasoline, distillate fuel oil, residual fuel oil, and jet fuel.

[c] Includes natural gas liquids, liquefied refinery gases (LRG's), other liquids, and all finished petroleum products except motor gasoline, jet fuel, distillate fuel oil, and residual fuel oil.

[d] A negative number indicates a decrease in stocks and a positive number indicates an increase.

(s) = Less than 0.05 million barrels per day, or less than 0.05 percent, or less than 0.5 million barrels.

Note: Totals may not equal sum of components due to independent rounding.

Source: Energy Information Administration (EIA), 1996, *Petroleum Supply Annual*, Volume II; appropriate issues of the *Petroleum Supply Monthly* and the *Weekly Petroleum Status Report*.

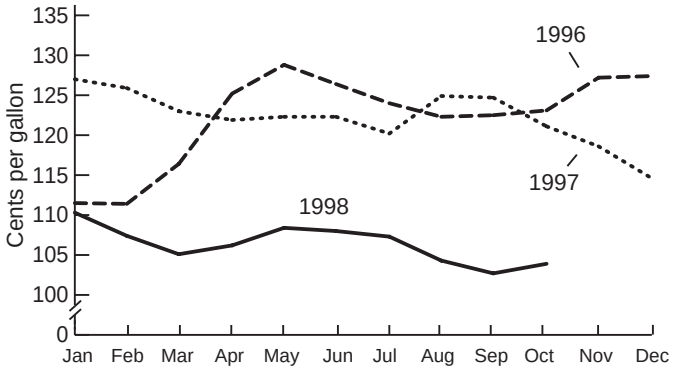
Data for the current month are preliminary estimates, based on weekly submissions. For an explanation of estimation methodology and accuracy, see Appendix A of *Weekly Petroleum Status Report* and the article, "Accuracy of Petroleum Supply Data", published in the December 1997*, Petroleum Supply Monthly.*

Table H2. U.S. Refinery Inputs, Capacities and Utilization Rates: 1997-1998
(Thousand Barrels per Day, Except Where Noted)

Item	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1997												
Gross Refinery Inputs	13,771	13,601	14,156	14,465	15,232	15,300	15,190	15,465	15,533	15,127	14,939	15,188
Operating Refinery Capacity[2]	15,168	15,205	15,233	15,229	15,449	15,461	15,462	15,452	15,464	15,464	15,452	15,424
Idle Capacity[3]	284	247	399	387	167	177	177	189	139	139	150	204
Idle Three Months or Less	197	160	220	180	0	10	10	22	12	12	12	66
Idle More than Three Months	87	87	179	207	167	167	167	167	127	127	139	139
Operable Refinery Capacity	15,452	15,452	15,632	15,616	15,616	15,638	15,639	15,641	15,602	15,602	15,602	15,628
Utilization Rate (percent)												
Operating Capacity	90.8	89.5	92.9	95.0	98.6	99.0	98.2	100.1	100.4	97.8	96.7	98.5
Operable Capacity	89.1	88.0	90.6	92.6	97.5	97.8	97.1	98.9	99.6	97.0	95.7	97.2
1998												
Gross Refinery Inputs	14,655	14,340	14,851	15,170	15,305	15,651	15,704	15,806	15,041			
Operating Refinery Capacity[2]	15,538	15,555	15,547	15,587	15,617	15,687	15,695	15,689	15,703			
Idle Capacity[3]	167	158	184	144	144	135	135	143	129			
Idle Three Months or Less	41	20	46	0	0	0	0	14	0			
Idle More than Three Months	127	138	138	144	144	135	135	129	129			
Operable Refinery Capacity	15,705	15,713	15,732	15,732	15,761	15,822	15,830	15,832	15,832			
Utilization Rate (percent)												
Operating Capacity	94.3	92.2	95.5	97.3	98.0	99.8	100.1	100.7	95.8			
Operable Capacity	93.3	91.3	94.4	96.4	97.1	98.9	99.2	99.8	95.0			

[1]Capacities are on a calendar day basis.
[2]Operating capacity equals the operable capacity less the total idle capacity.
[3] Idle capacity is the component of operable capacity that is not in operation and not under active repair, but is capable of being placed in operation within 30 days; and capacity not in operation but is under active repair that can be completed within 90 days.
Note: Totals may not equal sum of components due to independent rounding.
Sources: Energy Information Administration (EIA), 1997, *Petroleum Supply Annual*, Volume 2, Table 16; EIA, *Petroleum Supply Monthly,* 1998 data issue, Table 28.

Figure H3. Prices for Conventional Motor Gasoline (including taxes), 1996-current



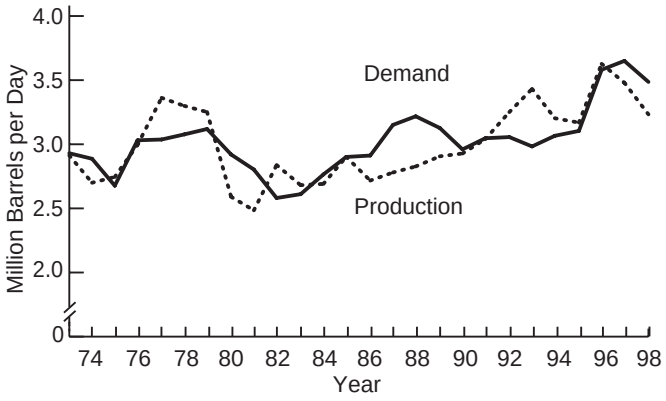
Source: Energy Information Administration, *Weekly Petroleum Status Report,* DOE/EIA-0208 (various issues).

Distillate Fuel Oil

Demand for distillate fuel oil averaged 3.5 million barrels per day, the lowest level for October since 1995 (Figure H4). **Production** of distillate fuel oil also dropped to the lowest level for the month in a few years, averaging 3.2 million barrels per day. Distillate fuel oil **imports** were normal for this time of year, averaging 197 thousand barrels per day. With prices for distillate fuel oil higher in the future than the current prices, distillate stocks were pushed toward their limits as some facilities converted storage space in an effort to capitalize on the difference in prices.[7] **Stocks** of high-sulfur distillate fuel oil, typically considered heating oils, were **nearly 5 percent higher than last October**. High-sulfur distillate fuel oil stocks totaled 76.3 million barrels and total stocks of distillate ended the month at 145.1 million barrels.

[7]"Gas Oil Stocks Set To Sink Atlantic Refining Margins", *Petroleum Intelligence Weekly*, September 28, 1998, p. 4 & 5.

Figure H4. Distillate, Year-to-Year October Comparisons, 1973-1998

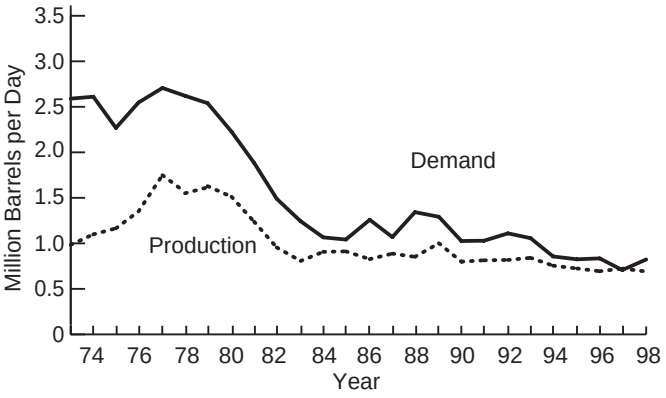


Source: Energy Information Administration, *Petroleum Supply Annual*, DOE/EIA-0340 (various issues), and *Petroleum Supply Monthly*, DOE/EIA-0109 (various issues).

Residual Fuel Oil

Production of residual fuel oil dropped to the lowest level for October since 1971, averaging only 691 thousand barrels per day (Figure H5). For utilities along the East Coast with the ability to burn both residual fuel and natural gas, competition from cleaner burning natural gas has been keeping demand for the heavy fuel oil in check.[8] Residual fuel oil **demand** during the month was normal for this time of year, averaging 823 thousand barrels per day. **Imports** of residual fuel oil averaged 283 thousand barrels per day, the highest level for October since 1993. **Stocks** ended the month at 39.5 million barrels, the highest October level since 1994.

Figure H5. Residual, Year-to-Year October Comparisons, 1973-1998

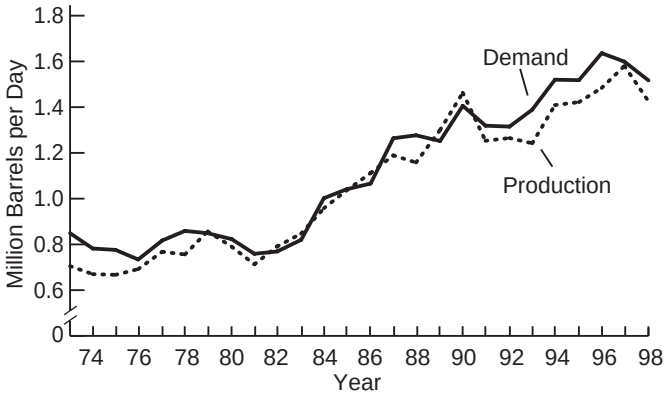


Source: Energy Information Administration, *Petroleum Supply Annual*, DOE/EIA-0340 (various issues), and *Petroleum Supply Monthly*, DOE/EIA-0109 (various issues).

Kerosene-Type Jet Fuel

Kerosene-type jet fuel demand continued at levels below that of last year; in October, **demand** averaged 1.5 million barrels per day (Figure H6). Feeling the effects of the refinery maintenance and outages, production of kerosene-type jet fuel dropped to it's lowest level in quite a while.[9] **Production** of kerosene-type jet fuel averaged 1.4 million barrels per day, **the lowest level in 30 months**. **Imports** of kerosene-type jet fuel averaged 75 thousand barrels per day, the lowest level for October since 1991. Kerosene-type jet fuel **stocks** ended the month within the normal seasonal range, totaling 43.0 million barrels.

Figure H6. Kerojet, Year-to-Year October Comparisons, 1973-1998



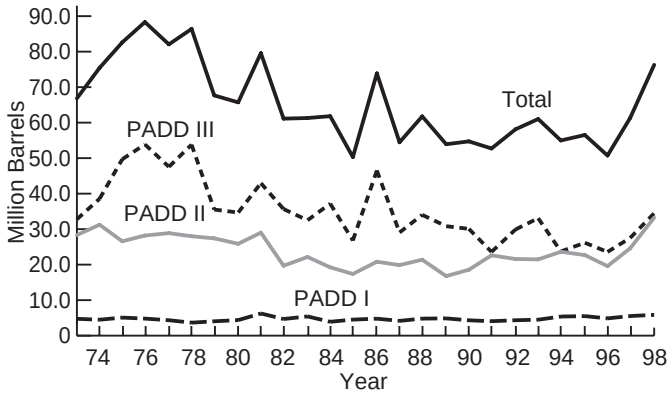
Source: Energy Information Administration, *Petroleum Supply Annual*, DOE/EIA-0340 (various issues), and *Petroleum Supply Monthly*, DOE/EIA-0109 (various issues).

Propane

U.S. propane inventories declined 345 thousand barrels over the course of the month and continue to track significantly above the normal range for this time of year. Propane inventories ended the month at a total of 76.3 million barrels. Stocks at the end of October were 15 million barrels above last year's level for the month and the highest level to end the month since 1981 (Figure H7). Regionally, inventories along the Gulf Coast increased by 148 thousand barrels while the East Coast and Midwest increased 321 thousand barrels and 390 thousand barrels, respectively. Gulf Coast stocks ended the month at 34.5 million barrels, the highest level for this time of year in 12 years. Propane inventories in the Midwest totaled 33.2 million barrels by month's end, the highest level for the month in more than 25 years. Stocks along the East Coast, which can be considered at or near full capacity for the region, also ended October at their highest level since 1981. East Coast inventories totaled 5.8 million barrels by the end of the month.

[8]"Return of U.S. Refineries From Maintenance Darkens Margin Outlook", *The Oil Daily*, October 30, 1998, p. 3.
[9]"Return of U.S. Refineries From Maintenance Darkens Margin Outlook", *The Oil Daily*, October 30, 1998, p. 3.

Figure H7. Propane Stocks, Year-to-Year October Comparisons, 1973-1998



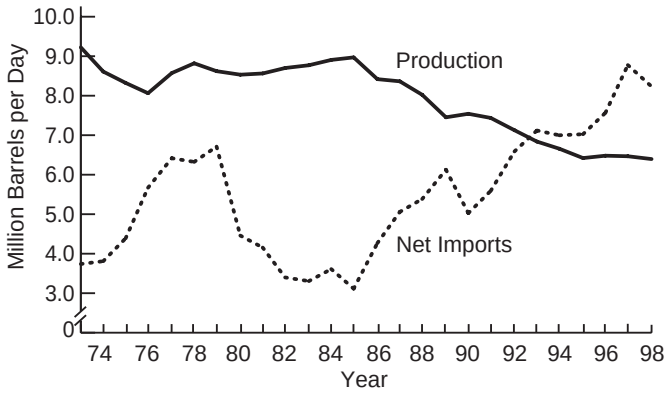
Source: Energy Information Administration, *Petroleum Supply Annual*, DOE/EIA-0340 (various issues), and *Petroleum Supply Monthly*, DOE/EIA-0109 (various issues).

Crude Oil

Domestic **production** of crude oil averaged 6.4 million barrels per day during October, the lowest level for the month since 1954. Despite an increase in Alaskan output compared to last month, warm weather continues to restrict crude oil output.[10] Crude oil field production in Alaska averaged 1.2 million barrels per day, the **lowest level for the month since the opening of the Trans-Alaskan Pipeline System** (TAPS) in 1977. Crude oil barrels normally headed to Asia have been ending up on U.S. slates due to the continuing economic woes that have hit the area and removed over 1 million barrels per day in refinery capacity in that region.[11] **Imports** of crude oil averaged 8.3 million barrels per day, the second highest level ever for the month. One measure of U.S. dependence on foreign crude oil is net imports, imports minus exports, which reached the **second highest October level ever** at an average of 8.2 million barrels per day (Figure H8). With less than a month until the expiration of Phase 4 of the Iraqi food-for-oil sales, Iraq's government halted cooperation with U.N. arms inspectors, causing crude oil prices to temporarily move higher.[12]

Crude oil **stocks**, excluding the SPR, ended the month at a total of 339.8 million barrels. This represents an additional **23.8 million barrels compared to this time last year**. Total crude oil stocks including the SPR ended the month at 903.2 million barrels, the highest level for October since 1994.

Figure H8. Crude Oil, Year-to-Year October Comparisons, 1973-1998, Production and Net Imports



Source: Energy Information Administration, *Petroleum Supply Annual*, DOE/EIA-0340 (various issues), and *Petroleum Supply Monthly*, DOE/EIA-0109 (various issues).

Refinery Operations

U.S. refineries experienced market driven run cuts, engaged in an aggressive fall maintenance program, and felt the lingering effects from hurricane damage in the Gulf area resulting in lower refinery operating rates this month.[13] Crude oil **inputs** dropped to an average of 14.0 million barrels per day, the lowest average for October in three years. During the month, the estimated refinery **operable utilization rate** (gross input divided by operable capacity) averaged 89.0 percent versus 97.0 percent last year.

[10]"Warm weather hampers September ANS output", *Platt's Oilgram News*, October 20, 1998, p. 2.
[11]"Asia's Slump Has Unwanted Crudes Seeking New Homes", *Petroleum Intelligence Weekly*, September 21, 1998, p. 4 & 5.
[12]"Crude Oil Shakes off Early Rush From Iraqi News, Loses 6¢/bbl", *The Oil Daily*, November 2, 1998, p. 2 & 3.
[13]"End of Refinery Maintenance Should Provide Boost to Crude Markets", *The Oil Daily*, October 29, 1998, p. 4.